

# Recommending a 15-Year Strategy

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# What is V21 Simulation?

- ◆ Integrated model of plant: steady state thru dynamic
- ◆ Able to access legacy code, vendor designed code
- ◆ Potential Users
  - DOE
  - Architectural & Engineering (A&E)
  - Designers
  - Operators
  - End purchasers
  - Manufacturers
  - Researchers

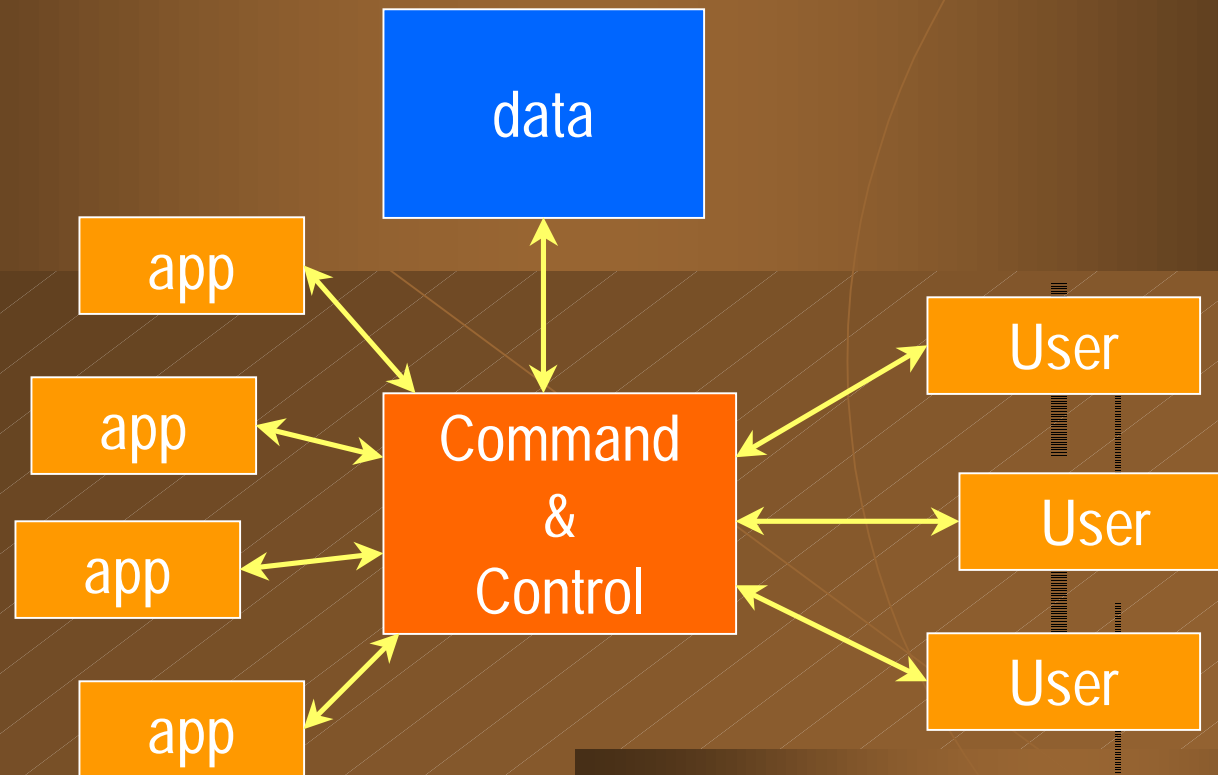
# 15-Year Goal

- ◆ Provide software infrastructure equipped with a toolbox of a hierarchical series of models to design, simulate, and control V21 plants

# Hierarchy of Models

- ◆ Platform is first
- ◆ Linking/integrating
- ◆ Real-time interactive
- ◆ Speed versus accuracy
- ◆ Use IECM to guide R&D agenda, validation scheme
- ◆ Never finished

# Structure



# Common Interface Needed

- ◆ CAPE OPEN
- ◆ CCA

# Milestones

- ◆ 1 yr: Establish a Standards Advisory Board
- ◆ 2 yr: Secure remote access through the internet
- ◆ 3 yr: Validate steady state simulations

Model multiphase dense flow at a fundamental scale

Visualize medium-sized pre-computed transient flow

- ◆ 4 yr: Standards Advisory Board will publish standards
- ◆ 5 yr: Optimization
- ◆ 6 yr: Validate transient simulations

Improve physical and chemical models for reacting single and multiphase codes

# Milestones, continued

- ◆ 7 yr: Revised optimization  
Model pollutant production
- ◆ 9 yr: Controls  
Transient model of each component
- ◆ 10 yr: Real-time visualization of transient data
- ◆ 12 yr: Consolidate models to move towards unified  
all-purpose CFD code
- ◆ 15 yr: Dynamic coupled models of all components

Software milestones refer to licensable releases for the user community